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The Winter Aspect of Trees.

IN the eyes of those who have genuine love for them, trees do not lose their beauty when their leaves fall; and, indeed, for such persons they have an especial attractiveness in the dreariest season of the year. We often hear the coniferous trees, which hold their foliage all the year through, praised for their value in a winter landscape, but deciduous trees, whether taken singly or in groups, have also their uses in the scenery of this season when they reveal beauties which are at other times unseen. There are no richer colors in a winter landscape than the warm browns of a distant wood, and there is nothing for delicacy of tint to match the faint mist of color that hovers above a thicket, a sort of a haze—it may be of violet or rose, or soft gray—composed of the mingled colors of the various twigs in the shrubbery. But, aside from the beauty in color and form of trees in mass, individual deciduous trees never display in perfection the dignity and grace of their framework until after their covering of leaves has fallen, and they then reveal to the careful observer the reason for many of their most striking peculiarities when in full leaf. For example, the attitude and gesture of different trees are quite distinct when under the stress of a high wind. This depends upon the way in which the branches bend and recover in the gale. In the winter one can readily see how the long slender branches of a Sugar Maple, most of which stand out at equal angles from the central stem, will sway in a different way from the sturdy and horizontal limbs of an Oak. We can see, too, how a tree with large and widely separated limbs, like some of the Oaks and Chestnuts, will have the grandeur which comes from an alternation of deep shadows and strong lights, while another tree, like an Ash or a Maple, before it acquires a strongly individual expression with age, will have a smoother and more sunny surface, in which the idea of gracefulness predominates over that of sturdy strength.

Of course, there are details of the color and texture of the bark of individual trees and the arrangements of their spray which can best be studied in winter. The Beech is one of our native trees whose winter aspect is particularly pleasing. Gilpin, in his classical work on *Forest Scenery*, is inclined to depreciate the picturesque value of the Beech; he pronounces its skeleton deficient in strength and firmness, the branches at the best being disproportioned, awkward and fantastically wreathed, while the bushy spray gives it a disheveled look. He admires, however, the trunks of old specimens when "they are studded with bold knobs and projections, and have sometimes a sort of irregular fluting, which is very characteristic." There are no American Beeches which have been so long pollarded as the famous Burnham trees, which are so impressive for the size of their hollowed trunks, even after the maltreatment which they have suffered. But we are inclined to think that the American Beech is a more impressive tree than the European, although the latter is strikingly beautiful, especially in youth. An old American Beech-tree certainly has dignity of form, and the bark is even more beautiful than that of the European Beech. It has a smoothness of texture unexcelled by the bark of any other tree, and a blue-gray color which looks still more clean when contrasted with the red-brown and abundant spray. Thoreau notices two of the most beautiful characteristics of our Beech when he says "no tree has so fair a bole or so handsome an instep as the Beech"; for the sturdy way in which the great roots curve out to grip the soil is noticeable in every well-grown tree. In a note in one of his journals in early winter, Thoreau also speaks of the thick, inviting bed which the fallen leaves of the Beech make on the ground: "Beautiful, perfect leaves, unspotted, not eaten by insects, of a handsome clear leather color, like a book bound in calf, crisp, elastic, covering the ground so cleanly as to tempt one to recline on it and admire the beauty of the smooth boles from that position, covered with lichens of various colors. The trees impress you as full of health and vigor as if the bark could hardly contain the spirit, so that it lies in folds about their ankles like the wrinkles of fat in infancy."

The illustration on page 125 gives an excellent idea of the proportions of a Beech-tree which has reached mature age, and of the peculiarities of its ramifications, although it is at too great a distance from the observer to show the quality of its bark. This particular specimen has a trunk girth of nine feet and a half six feet from the ground, and its branches cover a circle sixty-five feet across. It stands in South Hingham, Massachusetts, and we are indebted to the kindness of Mr. F. W. Brewer for the photograph from which our illustration is made.

The Work of Women in Village Improvement.

AMERICAN villages are not always desirable places of residence. With proper attention many of them could probably be made more healthful, and certainly more beautiful—or less repulsive—and they could be so organized as to offer their inhabitants greater social and educational advantages. That the well-being of all who live in country villages could be promoted if more thought and labor were given to their sanitary condition and general appearance is an evident truth, and it was to better these fundamental conditions of life that village improvement societies were originally founded, although from the very outset the originators of the movement conceived the still broader purpose of stimulating the love of nature and the development of artistic feeling.

Now, it is true that many of these associations have not fulfilled the sanguine hopes of their originators. Many of the promoters of the movement enlisted in it with no definite idea of what was to be done, no realization of what was important and essential in the project, no adequate knowledge, no artistic feeling, no genuine love of nature. Sometimes there was a lack of earnestness and enthusiasm, and this meant a lack of money to carry on the work. Sometimes there was zeal without knowledge, and this meant too many trees planted, or trees planted in the wrong place, and the invariably fatal results where work which can only be done by an expert is entrusted to a journeyman. And yet the majority of these societies have justi-

fied the wisdom of their founders, and there are many villages in the country which owe to them a good water-supply and sewage system, a general air of thrift and neatness, with improved roads and sidewalks, shade-trees, sprinkled streets, tree-embowered public squares and school-grounds. In many of these villages the railroad station and its well-planted surroundings prove a most favorable introduction to the stranger, who will see nothing to offend the eye in the way of rubbish heaps, tumble-down fences or obnoxious advertisements.

The movement is not dead or dying, and it is worth the attention of any one who lives in a small town, and therefore all such persons will do well to read Mr. B. G. Northrop's article in the March number of *The Forum*, entitled "The Work of Village-Improvement Societies." Here they will find illustrative instances of what can be done, and of what has been done by the movement inaugurated forty years ago with the incorporation of the Laurel Hill Association of Stockbridge, Massachusetts. The account of what has been achieved by this association is most instructive, and no one will doubt the statement that every acre of land and every homestead in Stockbridge has appreciated in value by reason of this society. There are rapid sketches of many other societies in the western as well as in the eastern states where the great benefit of concerted effort is shown, not merely in the way of accomplishing certain ends which are impracticable by individual effort, but also of exciting public sentiment so that it reacts upon individuals and prompts them, not only to improve their own property, but to bestow valuable gifts upon their fellow-townsmen.

The effectiveness of these societies in securing public libraries and the value of similar associations in cities like Springfield, Massachusetts, and New Haven are also recorded, but, perhaps, the most interesting fact which Mr. Northrop brings out is the dominating part which women may play in these local, and yet public, enterprises. The Laurel Hill Association was originated by a woman, and the members of the Honesdale Improvement Association, which is called the model society of Pennsylvania, are all women, although men are admitted to honorary membership, and a Young People's Auxiliary Association, including school-children, has been enlisted to protect flower-beds and shrubbery and gather waste paper scraps into neatly painted and labeled boxes. That women do not concern themselves exclusively with the ornamental branches of village improvement is shown by the fact that in Honesdale the first things advocated were improved sewerage and sanitation; and a similar spirit has marked the work of the Woman's Town Improvement Association of Montclair, New Jersey. A recent report of the Honesdale Association, as quoted by Mr. Northrop, says: "We did not overestimate the public spirit of our townspeople and their hearty coöperation in our endeavors. This is notably the attitude of our Town Council in every appeal we have made to them." And it is added that the citizens and the local papers, irrespective of political parties, heartily support this active body, composed of influential women of tact and zeal, who, at the birth of the association, were two hundred and fifty in number.

These assertions have a peculiar interest as indicating why, in this, as in many other branches of public service, women may do better work than men. Being less absorbed by business cares, and personally free from public responsibilities of a general sort, they have more time and more zeal to bestow upon local public matters than men, while, as a rule, their tact is finer. But the main point is that, being "out of politics," they are more readily credited than men with unselfishness and a pure concern for the public welfare. The history of the Woman's Club of Chicago and of other similar bodies in other large cities has proved this fact, and it demonstrates that men and newspapers of all shades of opinion will support a movement inaugurated by women, when, had it been inaugurated by men of different political opinions, they would have felt moved to oppose it. What is true in large cities is as true of small towns; and we believe that if the women of America will generally devote themselves to such useful and fruitful public work as has been accomplished by their sisters in Honesdale and Montclair, they will find that they are not without influence, even though they cannot vote.

Trees of Minor Importance for Western Planting.

THE principal deciduous trees that succeed in the west are Cottonwood, Box Elder, Russian Mulberry, Silver Maple, Catalpa, Black Locust, Honey Locust, White Elm, Green Ash, Black Walnut, Wild Cherry and Burr Oak. Besides these, White and Red Oak and Chestnut grow well in certain localities, principally toward the eastern part of the region south of the Dakotas. In addition to these, several other well-known species can be successfully grown in the Plain region. The Hackberry, or Nettle-tree, has a natural distribution almost as wide as that of the Box Elder, being found throughout Nebraska and South Dakota, and along the streams of northern Kansas. It grows rapidly under cultivation, and succeeds very well on high land. It endures shade well, at least while young, and can be used for mixing with Box Elder and other shade-enduring species.

Ailanthus was recommended almost without qualification in the early days of Kansas tree-planting, but the past few dry seasons have proved that it is worthless on high land, and of little value in any locality. Grown as coppice—that is, to be cut to the ground every few years—it makes a great deal of fuel, but in close plantation it can hardly be grown as a timber-tree. The species is too tender for northern Nebraska and the Dakotas.

A few Kentucky Coffee-trees at Hutchinson, Kansas, are doing well, and as this species is native throughout eastern Kansas, there should be no difficulty in its cultivation, except in high localities. Its large decompound leaves make it an interesting tree for lawn planting.

Very fine specimens of Sycamore were also seen at Hutchinson, but this tree is not successful on high ground and cannot stand northern winters. Strong two-year-old trees were killed to the ground at Brookings, South Dakota, after making a good summer growth.

The Russian Poplars and Willows have been quite extensively planted in South Dakota, but it is doubtful if they are acquisitions of special value. Mr. James Smith planted them extensively at Cresbard, Faulk County, South Dakota, in 1883 and 1884, and for several years they were very promising, but the attacks of the Cottonwood-leaf beetle, Lina scripta, followed by the excessive drought of the past few years, have completely destroyed his plantation. Populus Certinensis was largely planted at Brookings, where it failed when grown side by side with Cottonwood, a good proportion of which survived. Salix fragilis, a Russian Willow, has produced a great mass of branches, and cannot be grown in tree form, though introduced as a forest-tree.

The Laurel-leaved Willow, where protected from the beetle, is a beautiful small-sized tree that can be grown throughout the west.

The Basswood, or Linn, is native along all the streams in the eastern part of the plains, and would, doubtless, be successful under cultivation in places not too dry. There are few farm uses to which the wood can be put, however, so that its principal value in western planting would be to add variety to lawn or grove. Few of our native trees have such large clean leaves, and the sweet fragrance of its flowers, combined with its luxuriant foliage and clean growth, should make it an acceptable lawn-tree. The Hawthorns grow well in eastern Nebraska and Kansas, but these can hardly have a place in artificial planting, as every purpose they could fill would be much better served by the Plums.

The Plum is one of the native trees of the west, and every farmer should plant plum-pits in the margin of his

shelter-belt, not only for the excellent fruit which he is likely to get if he plants selected seed, but because the Plum, being a low bushy grower, brings the branches of his plantation down to the surface of the ground, and is, therefore, effective in keeping out winter winds. The Nebraska Choke Cherry, Prunus Besseyii, and even the Sand Cherry, can be grown in the same way, and the Sand Cherry, besides bringing the fine branches close to the soil, affords an abundant supply of food for birds. The tree is hardier than the Russian Mulberry, and it can, therefore, supplant that variety in the north.

Washington, D. C. *Charles A. Keffer.*

Foreign Correspondence.

London Letter.

Dendrobium Johnsonæ.—Messrs. F. Sander & Co. advertise this week an auction sale of "nearly a thousand plants, in superb condition," of this large-flowered species, which has been known since 1882, when it was introduced by Messrs. J. Veitch & Sons, for whom it was named Dendrobium Macfarlanei by Professor Reichenbach. Four years later (1886) the professor described it as having "flowers quite excellent; they surpass those of D. Phalænopsis, and are as large as those of D. formosum." In 1891 Mr. Rolfe, on receiving "a fine raceme of this splendid species for determination from Admiral Fairfax, who collected the plant in New Guinea," renamed it D. niveum, as the name D. Macfarlanei had been given to another very different plant from that named for Veitch by Reichenbach. But even this second name was not allowed to go unchallenged, Sir F. von Mueller, the well-known Melbourne botanist, pointing out, in *The Gardeners' Chronicle*, in May, 1891, that the correct name for the plant introduced by Veitch was D. Johnsonæ, and that he had described it in May, 1882, in the *Southern Science Record*, and that it had been discovered in New Guinea by the missionary, the Rev. James Chalmers, whose particular wish it was that his magnificent Orchid should bear the name of a Miss Johnson, of Sydney, who has interested herself in the New Guinea mission.

Reichenbach wrote in 1886 that "this Dendrobe, in its chaste and glowing beauty, may one day be an object of the most ardent interest to those who cultivate Dendrobiums."

According to Messrs. Sander & Co.'s description, this Dendrobium is a free grower with pseudo-bulbs and habit resembling those of D. densiflorum. As many as thirty spikes have been borne by a single imported plant; there are fifteen or more flowers on each spike, each flower being four to five inches in diameter, snow-white, suggesting a white Lælia anceps. The mid-lobe of the lip is variable in color, usually blue, sometimes orange. It is figured in *Reichenbachia*, t. 61, where the flowers are described as "pure white, with the exception of some slight purple stains on the side lobes of the lip." Mr. Rolfe informs me that he has seen flowers which were totally white. Messrs. Sander & Co. say D. Johnsonæ should be grown with its north Australian congeners (D. Phalænopsis, D. bigibbum, etc.), and that when making new pseudo-bulbs a high temperature is necessary. There are from three to eight flowers on the spikes represented in the figure in *Reichenbachia*.

Dendrobium speciosissimum.—This is a new species which Messrs. H. Low & Co., Clapton, have introduced, and now advertise for auction sale as a fine Dendrobium discovered by Sir Hugh Low on Mount Kina Balu, in Borneo, in 1867. He sent dried specimens of it to Kew in 1867, but they were too imperfect to be named with certainty. He describes it as being similar to D. formosum, but the pseudo-bulbs are much hairier, and the flowers, which are of great size and substance, are white, with a blotch of rich purple-red at the base of the labellum. The flowers are borne in clusters of about four on the ends of the short pseudo-bulbs. Sir Hugh Low says he found it growing on a Magnolia. D. Lowii, to which this new species is evidently allied, was found in the same country by Sir Hugh Low. In that species, however, the flowers are buff-yellow, with an orange-red blotch on the labellum. All the Dendrobes of this section, Formosæ, are large and handsome in flower, and have hairy pseudo-bulbs.

New Catasetums.—The two last issued parts of *Lindenia* (January and February, 1895) are devoted to eight pictures of Monsieur Linden's new Catasetums, some of which he exhibited in a collection at a meeting of the Royal Horticultural Society, and which were then voted one of the most interesting and attractive exhibits seen in London in recent years. Monsieur Linden says he has twenty distinct species or varieties or natural hybrids, whichever one prefers to call them. Some only differ from C. Bungerothii, as figured in the *Botanical Magazine*, in color, but others are quite different in form from that species, and are more like C. macrocarpum. Both these last-named species are found growing together in a wild state, and the inference is that they have been naturally hybridized, these beautiful and wonderful plants in the possession of Monsieur Linden being the result. I do not remember anything more remarkable in the whole history of Orchid collecting than the discovery of this collection of Catasetums by Monsieur Linden's collector. The conditions under which they were found have yet to be made known. Nor is there a parallel among the many hybrid Orchids raised artificially, true hybrids, as a rule, showing comparatively little variation. Catasetums have not yet been artificially hybridized; possibly they refused to ripen seeds under cultivation, still the experiment might be made with C. Bungerothii and C. macrocarpum.

The genus had not a prominent position among popular Orchids until Catasetum Bungerothii was introduced, and even that fine species was not strong enough to lift Catasetums into the front rank. But these new ones, figured by Monsieur Linden, and most of which I have seen in flower, are really grand Orchids. I know no tropical Orchid more worthy of a place in the garden than the Catasetums which Monsieur Linden calls C. imperiale, C. splendens, var. atropurpureum, C. Lindeni, C. mirabile, and, in fact, all that I have seen of this set. Their origin will be as interesting to botanists as their large, richly colored, singularly formed flowers will be to cultivators.

Eulophiella Elizabethæ.—Two plants of this handsome Orchid are now flowering at Kew. They were obtained in the autumn of 1893, when they were newly imported from Madagascar, and they have been growing ever since in teak baskets suspended over a hot-water tank in a tropical house; they are planted in pure sphagnum moss, and they have been liberally watered always. The strongest has made leaves three feet long by one and a half inches broad, four to each growth, and one bears three, the other two spikes. These are horizontal, a foot to eighteen inches in length, straight, dull brown-purple, with ovate-concave bracts. There are sixteen flowers and buds on the strongest spike and these are like the figure in the *Botanical Magazine*, t. 7387, in size, form and color, except that they are not tinged with rose on the inside of the segments. The growths are not as yet nearly as strong as the imported bulbs show they ought to be, and I am doubtful of our being able to keep this Orchid for any length of time. Plants of it are also in flower in the St. Albans nurseries.

Cattleya Percivaliana is a beautiful and useful Orchid which deserves to be more largely grown than it is. Several plants of it here are in flower now, the flowers of medium size, elegant in form, and of the richest shades of maroon-purple and mauve. It was introduced in 1882 from south-west Venezuela, where it is said to "invariably grow on rocks, not on trees, and in full exposure to the sun, generally in the vicinity of river courses, which, in the rainy season, afford abundant moisture to the plant." Under cultivation it thrives when planted in peat and sphagnum, either in a basket or on a raft. The preference for rocks is a peculiarity of another handsome winter-flowering Orchid,

namely, Epidendrum bicornutum, which forms thick masses on exposed rocks near the sea in the island of Trinidad. It also thrives in peat and sphagnum in baskets, requiring excessive heat and moisture while making new growth.

Maxillaria Lindeniæ.—The March number of *Lindenia* contains a figure and description of this handsome Orchid, which was introduced from Peru in 1893 by *L'Horticulture Internationale*, and flowered in their nursery in the following January. It was first described by Cogniaux in the *Journal des Orchidées* last year, p. 362. I lately saw a flower of what is evidently the same plant and which is in the collection of Sir Trevor Lawrence, under another probably erroneous name. It is a near ally of M. venusta, but the segments are broader, the figure in *Lindenia* suggesting a flower of Lycaste Skinneri. They are white, with longitudinal lines of purple on the sepals and the outside basal portion of the lip, the front lobe inside being yellow, with red marginal blotches. The differences between it and M. venusta are pointed out in *Lindenia*, the principal one being the monophyllous pseudo-bulbs and the shorter, broader flower segments in M. Lindeniæ. It is likely to thrive in the cool Orchid-house.

Thomas Baines.—This famous English gardener succumbed this week to an attack of influenza. He was seventy-two years of age, having been born in North Lancashire, at Claughton Hall, where his father was gardener and his grandfather before him. Thirty years ago Mr. Baines was without a rival as a cultivator of specimen pot plants, and his collections were rarely second to any wherever he exhibited them. Hard-wooded greenhouse plants grew to an enormous size and flowered with wonderful prodigality under his treatment. He was equally successful with Palms, Ferns, Pitcher-plants, Crotons and Orchids, the specimens of these shown by him in London, Manchester, all over England, in fact, being marvels of cultural skill, even to men who were skillful cultivators themselves. For the last twenty years Mr. Baines practiced with conspicuous success as a landscape-gardener. He was an ardent disciple of the natural style and used to speak of Coniferæ as the bane of many English gardens. I have always known him as "Old Tom." He was a prolific writer for the gardening press, and he wrote an excellent book on the cultivation of stove and greenhouse plants.

London. *W. Watson.*

Plant Notes.

Pittosporum undulatum.—This plant is an evergreen greenhouse shrub, introduced into British gardens from Australia toward the end of the last century. It is one of the best of the genus, the long, linear, wavy leaves giving a graceful appearance to the otherwise somewhat stiff habits of growth; the leaves are also a rich deep green, shining, and of good substance. It thrives in a cool house in winter, and in summer can be used for decorating the piazza or grounds. The small white flowers open in January and continue into March; they are borne in clusters on the tips of the branches, have a pleasant fragrance and continue in good condition for weeks. This is a good house plant; the combination of flowers and foliage is effective, and it will withstand the usually trying conditions of living-rooms if kept well watered. The cultural requirements are simple; a rich soil, with plenty of peat and sharp sand, is the best potting material, and overpotting should be avoided. The propagation is by seeds, which are abundantly produced on older plants; the seedling grows quickly, making blooming plants in from two to three years. It is well to keep up a fresh supply of young specimens, as the older plants frequently lose much of their symmetry and become too large and overgrown for handling with ease. It thrives out-of-doors in Florida, and is one of the common shrubs of southern California.

Pelargonium Henry Cox.—This is the prettiest of the so-called golden tricolor section, and has been valued in greenhouses for some years for its beautiful foliage. None of the Pelargoniums are as bright-colored as this little plant, whose vigor is apparently expended chiefly in the production of highly colored leaves, which, when well grown, are more showy than many flowers. They have usually a bright green centre, a zone of brilliant red, with black markings and a broad edging of clear light yellow. White stems are also a distinct attraction of this plant. It needs a rather subdued light in a warm house, but cannot be coaxed into rampant growth. Owing to its slow increase it is not a favorite with dealers, and is seldom offered by plantsmen, so that it is probably not widely cultivated. The flowers are borne infrequently and are of little beauty, being small and of a light magenta color.

Galanthus Elwesii.—This fine Snowdrop is now produced in large quantities by European growers, and consequently is offered at such low prices that it is almost as cheap as the common Galanthus nivalis. It is sometimes called the Giant Snowdrop, an excellent name, for it is our old friend magnified, and that, too, without added coarseness or any objectionable quality. It is as early to bloom, as hardy, and has the form and peculiarity of blossom and coloring which we associate with the first flower which ushers in our spring. It is a native of Asia Minor, and, although known as early as 1854, was not introduced into gardens by the man whose name it bears until 1875. It can hardly be called common even now, since it is only recently that bulbs have been grown or collected in sufficient quantities to supply the demand. This, like most other Snowdrops, gives the best results after it has been planted several years; it must be well established, growing compactly in clumps, to give an abundance of flowers. It is not necessary to separate them every three or four years, as is the case with so many bulbous plants. One of the best positions for these, or other early spring-flowering bulbs, is along the foundation-wall of the house or greenhouse; they can be planted directly against the brick or stone work, and so obtain not only good protection, but also additional warmth; unlike other plants, they do not suffer here from the summer drought, because their growth comes in late autumn or early spring, when there is plenty of moisture. This Snowdrop makes a good edging, and can be naturalized in grass or on the borders of a shrubbery.

Eranthis hyemalis.—This plant, commonly known as the Winter Aconite, is one of our earliest flowers. It is in bloom now, with Snowdrops and Crocuses, showing its bright yellow flowers, which are of good size and are supplied with more foliage, in the form of a deeply cut involucre, than we usually find in plants at this season. It is a native of western Europe, and has been long in cultivation. It belongs to the Buttercup family and has a tuberous root, a corm; it is usually classed and cultivated with the "Dutch bulbs." The tubers should be planted as early in autumn as possible; they are quite small, and not infrequently arrive in poor condition, suffering from too long exposure to the air. It is a good plan to plant them in sand—that is, after preparing the soil and removing a sufficient quantity of earth for the purpose, put half an inch of sand over the surface thus exposed, then plant the bulbs and cover them with an equal amount of sand, after which the soil removed can be replaced and the planting completed. The tubers are thus surrounded with sand and are less likely to be injured by too much moisture. This Eranthis should be grown in a warm, sheltered, sunny position; it may also be used in the wild garden, and in grass, provided the latter is not too thick and well kept. In favorable situations it sometimes propagates itself abundantly by seeds.

Clivia (Imantophyllum) miniata.—This is one of the old-fashioned greenhouse plants which is thoroughly good and admirably suited for private places. If kept in a cool house, it is now in good bloom, showing its large highly colored orange-red flowers in full clusters on stout stems, well relieved by the thick mass of dark glossy green foliage. Although introduced forty years ago, this Ama-

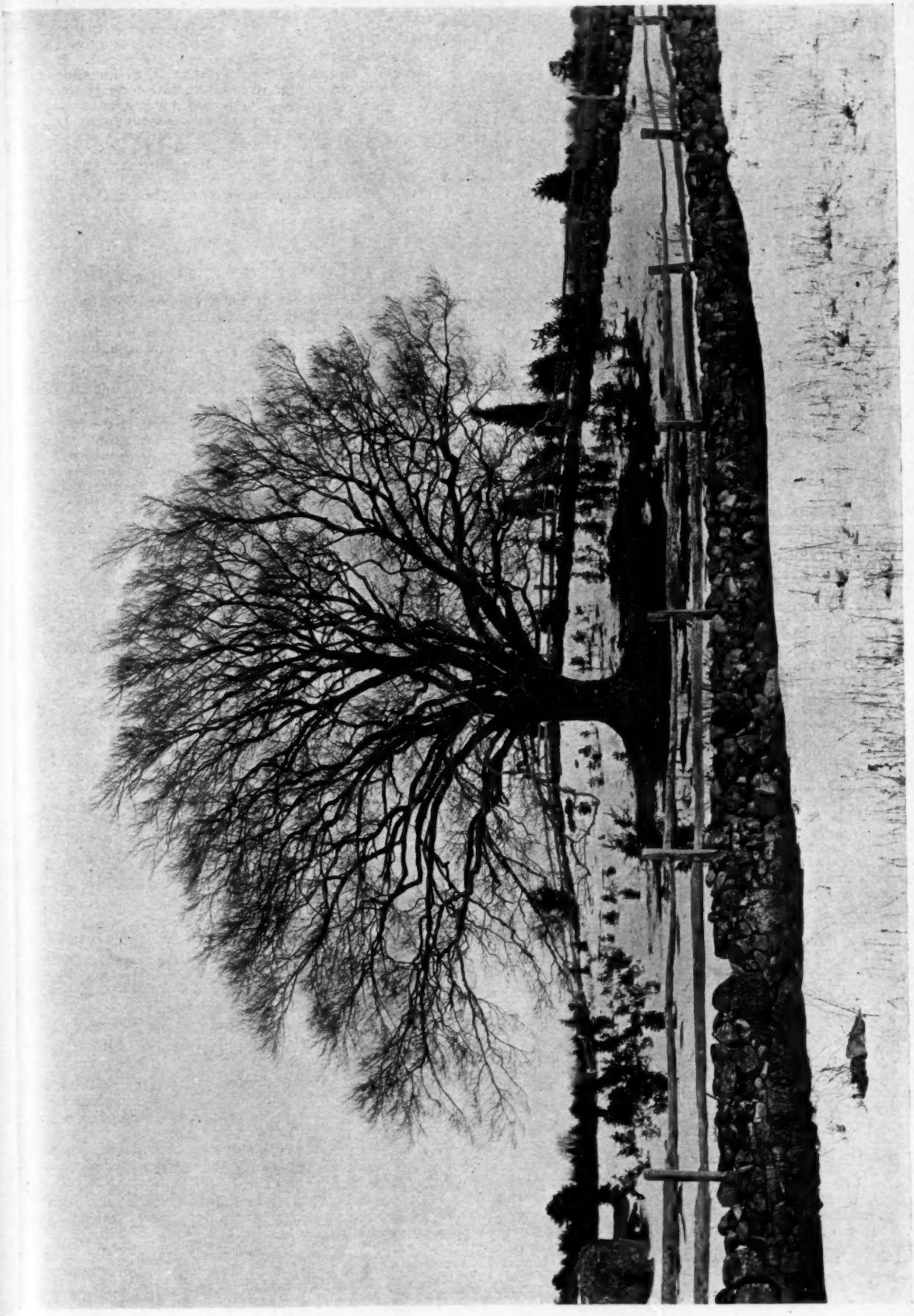

Fig. 19.—Beech Tree in South Hingham, Massachusetts.—See page 121.

ryllid is still one of the best of winter-flowering plants. Clivias thrive in a warm rich soil made of rotted sod and peat, and, since they are kept for several years in the same pot or tub after they have attained size, it is well to add coarsely broken bone and charcoal when potting good specimens. The propagation is sometimes by seeds, but more commonly by division, either by removing some of the offsets or by tearing an old plant to pieces. This last is best done just after the plant blooms; the small plants thus obtained should be planted in five or six inch pots in a rather sandy soil; if well done they will often produce flowering plants in one season. Seeds are not easily obtainable; it is said that the production of seeds weakens the old plant, and they are seldom used except for procuring new varieties. In summer good-sized plants are useful for decorating grounds and piazzas. Too much praise can hardly be given to the splendid race of hybrids and seedlings which have been raised from this plant in Belgium and England.

Cultural Department.

Vegetables for Private Gardens.

TWENTY, or even ten years ago, it was a comparatively simple task to select a list of vegetables for home use, but with the annual introduction of the numerous varieties found in the catalogues of seedsmen, the problem has become complicated. It is a popular error that a majority of these novelties are old favorites with new titles. It is only fair to say in defense of the seed dealer that this is not so, for while some novelties are fictitious, most of them are genuine, and they indicate a marked advance on the types of a few years ago. The fact is, that there is a large increase of critical growers who demand improvements to suit their special wants, and the seed dealer who fails to meet this demand is left behind in the race.

I am closely in contact with competent gardeners, both commercial and private, and know that the varieties used by the former class are not of great use to the others, as a rule, and my object in these notes is to point out what qualities are desirable in vegetables raised for the home table. The notes will also show that one who plants for his own table should avoid many sorts used by the market-gardener, whose object is to grow a radish that "bunches well," or a pea that "fills the basket" quickly, or a muskmelon that is "grand for shipping," features absolutely essential for commerce, but often secured only at the sacrifice of the highest table qualities. The best way to accomplish this purpose will be to give a list of vegetables with the qualities most to be desired in each, and to add in each instance the names of such as approach most nearly the ideal standard.

BEET.—Freedom from fibrous or woody texture, constancy of color, a smooth clean root, smallness of foliage, are qualities to be most desired.

Dewing's Blood Red, Eclipse, Edmand's Red Turnip, Long Smooth.

BUSH BEANS (wax and green podded).—The best varieties make strong, compact plants, free from runners, bearing shapely pods that are slow to develop stringy or parchment-like character, both elements of toughness. Round podded varieties are generally best and most tender.

Early Red Valentine, Extra Early Refugee, Refugee (or 1,000 to 1), Black Wax, Wardwell's Kidney Wax.

POLE BEANS.—Secure all points, as in Bush Beans, but see that a sort is chosen that "takes poles" freely.

Horticultural Pole, Old Homestead, Golden Cluster Wax, Golden Champion Wax.

The best Pole Lima Bean is certainly Dreer's Improved.

CABBAGE.—Compact habit, small leaf-veins, short strong stem, few outside leaves; if for keeping, solidity of head; if for early use, tenderness and delicate flavor in green state are essentials.

Jersey Wakefield (early), Early Dwarf York, Succession (medium early), Late Flat Dutch.

CAULIFLOWER.—Self-protecting foliage—that is, the habit of the leaves to fold inwardly, which insures a tender white flower; smooth surface of flower; freedom from green leaves growing through the flower. Compact habit of plant and ability to withstand extreme climatic conditions are points to secure.

Extra Early Dwarf Erfurt, Thorburn's Gilt-edge, Henderson's Early Snowball.

CARROT.—Depth and character of soil is essential to successful cultivation of long varieties. If the soil is unfavorable, the roots will be forked and generally irregular. Bright color and absence of core are essential; a small compact top is also an advantage where room is valuable.

French Forcing and Early Scarlet Horn for soups; Early Half-long Carentan, the best of all; Half-long Danvers.

CELERY.—Flavor and freedom from string in leaf-stalks must have first consideration, and sorts deficient in these qualities should be left alone. The red varieties are the best, though generally considered less ornamental. A test of crispness and solidity is to snap the stalks; the more strings shown the tougher it will be.

White Plume, Pink Plume, Golden Dwarf, Perle le Grand, New Rose.

SUGAR CORN.—Sweetness is to be desired first and always. Small cob, deep grain, low-earing habit, ability to resist smut (early red-cob varieties are most subject to this), strong husk, which generally keeps the grain tender a long time, are all desirable qualities.

Perry's Hybrid, Stabler's Early, Hickox, Country Gentleman (the best), Stowell's Evergreen.

CUCUMBER.—Secure strong vine, freedom in setting fruit, medium size, symmetry of shape, firm flesh, few seeds and delicate flavor.

Early White Spine, Cool and Crisp, Livingston's Evergreen.

LETTUCE.—Varieties with large veins in the leaves are to be avoided; compact, close-heading habit is essential; never plant a sort with a heavy stem growing where the heart should be; thin, tender leaves, as distinguished from "flannelly" leaves, should be sought. The foregoing points will always secure good color and tenderness. Ability to resist "running to seed" is a hard point to cover; some seasons will encourage this fault in the best varieties. For sweetness of flavor none can surpass the Cos or Romaine sorts.

Curled Simpson and Black-seeded Simpson are early and loose-headed. Boston Market and Golden Queen are early and solid-headed. Salamander and Henderson's Big Boston are solid-headed summer sorts.

MUSKMELON.—Flavor must be supreme here. A good variety should have thin rind, and the seed cavity should be small. These points will insure depth of flesh, which should also be fine-grained and entirely melting. Color in the flesh is not of importance generally, though the very best varieties happen to be red or salmon fleshed.

Netted Gem (green-fleshed), Jenny Lind (green-fleshed), Emerald Gem (salmon-fleshed), Christiana (salmon-fleshed).

WATERMELON.—Desirable points are the same as in the Muskmelon generally, but a large "heart" is essential, this being the best-flavored part of the fruit.

Cole's Early, Ice Cream (white-seeded), Florida Favorite, Dark Icing.

ONION.—Good-keeping qualities, symmetrical shape, freedom from neck, and mild flavor are the prime requisites.

White Portugal, Yellow Globe Danvers, Southport Red Globe, Southport White Globe, Southport Yellow Globe, Prize-taker.

PUMPKIN.—The two sorts named below are both fine-grained and deep-fleshed. The first is a smaller and more finely bred selection of the latter.

Calhoun, Cheese.

PEAS.—Here, if anywhere, every one knows what he wants. I merely submit a list of sorts arranged in their order of maturing, adding the height in feet attained generally by each sort.

Henderson's First of all (two and a half feet), American Wonder (one foot), Chelsea (one and a quarter feet), Advancer (two feet), Everbearing (two and a half feet), Heroine (three feet), Admiral (four feet), Champion of England (five feet), Telephone (six feet).

RADISH.—A small top and fine tap-root; the top should occupy but a small portion of the surface of the bulb; the latter should be clear in color and free from rootlets; the flesh should be crisp and mild in flavor; above all, it must grow quickly, otherwise it will be pithy. I have purposely included only the small delicately flavored sorts.

Red Forcing, Scarlet Turnip, French Breakfast, Long Brightest Scarlet.

SQUASH.—For early summer use grow either White Bush, scalloped, or Bush Summer, crook neck. The latter is the drier-fleshed sort. For keeping, select sorts with hard, but thin, shell, small seed cavity (insuring deep flesh) and fine-grained flesh of rich dry flavor.

Early Prolific Marrow, Boston Marrow, Essex Hybrid (the best-flavored).

TOMATO.—Do not grow the biggest varieties. Secure a strong, but not rank, grower with medium-sized fruits that are

produced freely. The flesh must be solid, the core perfectly tender, seeds few, and there must be no seed cavity or tough skin. The shape should be round, without depression at the stem or blossom-end, and there should be no corrugation.

Ignotum (the best of all), Dwarf Champion, Favorite, Beauty, Trophy, Perfection.

TURNIP.—Small top and root, good-shaped bulb, rapidity of growth, tender flesh and mild flavor.

Early Snowball, Red-top Strap-leaf, Purple-top White Globe, Golden Ball or Orange Jelly.

Bloomfield, N. J. *S. A.*

Flower Garden Notes.

ALTERATIONS are needed in the garden that have suggested themselves during the past season, and if, as often happens, there was not time to make these in the early fall, they should be started as soon as the soil is in workable condition. The roots of plants and trees seem to begin their work before the frost is really out of the ground, and certainly the earlier plants are moved the more likely are they to make a good display.

Pæonies should be moved very early, especially if the roots are to be divided. They are generally considered difficult to transplant, but this is not true if they are moved early enough and all the tubers taken up without damage, a sharp knife being used to sever the parts near the buds, so that they may not be injured. If these details are seen to, the plants will flower as well during the succeeding summer as though they had not been disturbed. The Tree Pæonies are not seen in gardens as often as they deserve. They are perfectly hardy with us; they flower as freely as the herbaceous kinds, and much earlier in the season before the arrival of the rose-bugs; this is a great advantage, for it is difficult to think of the later kinds without associating them with this troublesome pest. The old Pæonia officinalis is also early-flowering, and belongs to a different section, being, indeed, a true species, with several varieties. The old original scarlet is a fine showy plant in the border, coming in soon after P. tenuifolia. P. corallina is a single-flowered early species with coral-red flowers. This plant is rare in gardens, and is a native of Asia Minor. Another good garden-plant is P. Wittmanniana, from the Caucasus, with very distinct foliage, and single creamy white flowers early in the season. P. corallina and P. Wittmanniana are proving quite hardy here, and add much to the interest of the garden early in the season, between the flowering of spring bulbs and the majority of true herbaceous plants. Single-flowered Pæonies are not often seen, partly on account of their rarity in trade-lists, but their beauty is undisputed. P. albiflora is more common, but is grown by few cultivators, though it is a fine companion for the above-named sorts, and is the parent of the race of our numerous garden varieties. It is not commonly known that in California, and I think also in Oregon, a Pæony is found growing wild. This Pæony, P. Browni, is not a showy plant, and for this reason is but little known, but it is a true Pæony, indigenous to the United States.

It is now proven that the Eremuri can be grown here as easily as in Europe, and they are among the most noble of hardy plants. We have three specimens established here, but have thus far flowered only Eremurus robustus; the others will probably flower during the coming season. The long, thick, fleshy roots of the Eremuruses are peculiar in their construction; they radiate from a central crown-bud and spread in all directions, making it difficult to pack them safely. Our roots came from Holland in good condition, and E. robustus flowered the first summer after planting, as noted in GARDEN AND FOREST last year. The other two kinds are E. Himalayacus and E. Olgæ. We planted them in a situation that insured dryness in the fall, so that the crowns should ripen after flowering. A thin covering of manure was spread over the soil in fall as a mulch rather than as a protection. Eremurus-seeds seem to be somewhat erratic in their germination. We sowed all that matured as soon as they were ripe, and only two plants have come up, while Mr. Endicott stated in GARDEN AND FOREST some time since that seeds he sowed came up thickly under the same treatment. Eremuri should be planted in the fall, as the foliage dies down soon after the plants flower in summer, and reappears very early in spring; it would, therefore, be unwise to disturb the roots in the spring unless this cannot be avoided.

The stock of hardy Pyrethrums is easily increased at this time, or as soon as the young shoots appear above ground. These may be taken off as low down as possible and the cuttings put in sand. They will root quickly and flower during the coming summer as well as if they were left on the old roots. Old clumps may also be divided, and then there are always some shoots that may be spared for use as cuttings. For the best double kinds it is desirable to have a few reserve plants, since the old clumps sometimes die out if left too long in one place and the soil becomes exhausted. Propagation cannot be done too soon after the shoots show above ground in spring. Old plants of the Oriental Poppies must also be moved at the first peeping of the shoots, as these are early-flowering and strong-growing plants. They need rich soil and fall planting, if this is possible. To propagate more Poppies, as soon as the roots can be lifted they should be cut in pieces an inch or two long and these should be placed in sand in a warm house when they will sprout in a week or two. They will make fine stock to flower next year if these young plants are set out in May in good soil. Root-cuttings are the only reliable means to reproduce any special variety, as from seed scarcely any two will be alike.

South Lancaster, Mass. *E. O. Orpet.*

Hints on Potting Orchids.

FOR potting material many good growers now use peat alone, while others believe in a mixture of peat and sphagnum, which has the advantage of retaining the moisture better. As the sphagnum gets worn out sooner than peat, more frequent shifting is needed, but, where this can conveniently be done, the mixture is, no doubt, better than peat alone. In either case the material should be broken up and well washed to remove all eggs of snails and insects, then left to dry again before using. Baskets are preferable to pots for most of the more commonly grown species, such as Cattleyas, Dendrobiums, Lælias, and, in short, all that require a plentiful supply of air at the roots. For others, such as Cypripediums and Odontoglossums, which require the roots kept rather cool, pots or pans are the more suitable. In shifting, shake the plants well out, and if they have suffered in any way from stagnation the roots will need to be well washed, all decayed root and parts should be cut away, and particular attention should be paid to removing all dead matter from around the eyes, so as to have them perfectly clear. Thorough drainage should always be given, and the addition of a few pieces of charcoal above the crocks is very advantageous. In placing the plants in the baskets or pots, see that they are set so that the roots from the young growth to be made this year will have plenty of room to enter the compost. If the plants are placed in the centre without regard paid to this point when the young growths have pushed their roots, they will not be found in the basket or pot, but to be over the side of it.

Where the plants have few or no roots it is a good plan to tie a little peat or sphagnum around the base with a strip of raffia; this keeps them in shape and protects them when being placed in position, and since firm potting is essential it makes sure that the material is packed closely around them.

Tarrytown, N. Y. *William Scott.*

Chrysanthemums.

THE arrival of new Chrysanthemums marks the beginning of the busy season for the cultivator of these flowers. The old varieties on hand, intended for specimen plants, will be considerably in advance of these new sorts. Although we try all new introductions which show any promise as specimen plants, we do not rely on them, but rather on tested kinds. Exhibitors, however, all things being equal, usually get most credit for well-grown plants of striking novelties, especially in the matter of color. Portia won a good deal of credit last season as an exquisite pink of two shades. Iora, also, had many admirers; the delicate mauve flowers are composed of curled petals, beautifully arranged. Clinton Chafant was another novelty of exceptional value. Unfortunately, very little can be gleaned from the catalogues concerning the value of novelties as bush specimens. They are seldom tested as such, and, if at all, in a very unsatisfactory way. One dealer wrote me that varieties as specimen plants were profitless to handle, so generally has the rating been confined to the blooms as the final test.

The tips should be taken from newly arrived plants, and, as stated in a previous note, these often make the best plants, and certainly the best specimen flowers. The plants should be placed in the garden in May and treated in every way as pot-grown plants are treated, giving them the benefit of careful stopping, tying and watering during dry weather. If they develop the foundation for good specimens by the middle of August we lift them. We consider August the best time for this work, and have never had the loss of foliage so much complained of when the plants are lifted later.

We make only three stages in the potting of our plants.

Growers differ, and, no doubt, it would be safer for the inexperienced to make four. Knowing the character of most of the varieties we grow, helps us to decide on this plan. We shift them from two to four inch pots, and from six to twelve inch pots. The nine or ten inch stage might be added, and for many growers this will be the most convenient limit. Specimens from four to five feet in diameter may be grown in a ten-inch pot. Again, it might not be advisable to shift a poor plant into a twelve-inch pot, and judgment must be used. We are not afraid to make this shift in any case. We use a rather light loam, not very rich, relying on the judicious use of stimulants later on. We do not use any sand, although this is needed in heavy soils, but we add some leaf-soil. We pack loosely, and find this provision against overwatering a safe one, and overwatering is a common misfortune in the cultivation of Chrysanthemums in the earlier stages. If care in watering can be counted upon it is as well to use twelve-inch pots, but not otherwise. At no season is it more important to attend carefully to the stopping of plants, for now, perhaps, more than later, foundation is made for future development. A poorly shaped plant now is not likely to make a good specimen later on. The tips should be taken when an inch or two long, and the softer the better.

Stock plants for cuttings intended for specimen blooms, stored in cold frames, will be moving now, and if they have made five or six inches of growth, as is likely if they have been unusually protected, it is better to cut them over. Nothing will be lost thereby, as there will probably be an abundant crop of cuttings by the first of May. Those stored in the cool greenhouse have already been cut over and are now breaking from the bases. These we shall top-dress in a few days and place in cold frames. In the mean time we shall take every leaf-eye and shoot we can get of reputable novelties.

Wellesley, Mass. *T. D. Hatfield.*

Correspondence.

Bordeaux Mixture and Color Tests.

To the Editor of Garden and Forest:

Sir,—The use of color tests to determine the presence of copper in solution offers a very convenient method for preparing the Bordeaux mixture. The necessity of weighing and straining the lime required by the formula each time the mixture is prepared is thus obviated. This method simplifies the preparation of the mixture so much that those who have learned to use it will not like to give it up unless it can be shown that it is unreliable, or unless something better is brought forward to take its place. So far as our present knowledge goes, no more convenient method than the color test has yet been suggested, neither have the color tests been shown to be unreliable when rightly used.

The work of fighting fungous diseases of cultivated crops for the season of 1895 will soon be upon us, and as some articles published in the columns of Garden and Forest and elsewhere within the last few months have tended to cast doubts on the advisability of employing one of these color tests, the potassium ferrocyanide, it may be well to consider briefly some of the objections to its use.

In an article on pages 456 and 457 of the last volume of Garden and Forest Professor Lodeman calls attention to the unusual russeting of apples and pears noticed in many western New York orchards in 1894, and especially to "the important point that Bordeaux mixture, however prepared, increased the evil," and expressed the opinion that the most severe cases were found in orchards sprayed with Bordeaux mixture made by following the potassium ferrocyanide test.

On page 497 of Garden and Forest, 1894, Professor Jones states that after thorough trials he has no hesitation in sanctioning the use of the ferrocyanide test in preparing Bordeaux mixture for spraying Potatoes, yet in his work in 1894 a russeted appearance of apples and pears followed the use of Bordeaux mixture made by this test for spraying orchards.

Trees at the Geneva Station sprayed with London purple or Paris green with the addition of lime only, so that the arsenites might not spot the foliage, also showed a russeted appearance of the fruit and spotting of the foliage. Trees sprayed with Bordeaux mixture to which no arsenites had been added showed russeted fruit as a result of the spray, as also did trees sprayed with Bordeaux mixture combined with London purple or Paris green. In all three instances corresponding unsprayed trees were practically free from this peculiar russeted fruit. The only substances used in all three instances were the lime and water, in one case combined with an arsenite, in one case with copper sulphate, and in one case with both copper sulphate and an arsenite. The Bordeaux mixture was prepared by means of the ferrocyanide test. Taking into consideration only the evidence given here, one might conclude that it was the lime and water in the spraying mixtures that caused the injury rather than the use of the ferrocyanide test.

Bordeaux mixture made according to the ferrocyanide test was used at the Geneva Station in 1893, prepared according to the same formula that was used in 1894. No injurious effects were seen either on foliage or fruit sprayed with this preparation in 1893, even when six treatments were used, but the same preparation sprayed but once in 1894 showed some injury both to foliage and fruit. The prominent new condition which attended the work in 1894 was the unusual cool, cloudy and wet weather during a considerable portion of the spraying season. At Geneva during the week from May 17th to May 23d, 1894, there was less than three per cent. of the possible amount of sunshine, and during the two following weeks but fourteen per cent. and thirty-nine plus per cent. respectively, showing an exceptionally long period of cloudy weather for this locality. The records also show that during this period the temperature was low. From May 16th to June 5th, a period of twenty-one days, rain fell every day, and the total rainfall for these three weeks was seven and thirty-eight hundredths inches. Trees at this period, having just finished blooming, were in a state of active growth both of fruit and foliage. Under such circumstances the unusually long period of dark, cool, rainy weather undoubtedly produced a tender condition of both foliage and fruits, rendering them peculiarly liable to injury upon slight irritation. Such irritation was produced by spraying compounds made without the ferrocyanide test as well as with it, as has already been shown. In fact, as stated by Professor Lodeman in the article cited, and as noticed by others, an unusual russeting of the fruit was found in some instances where trees had not been sprayed at all. Similar weather conditions, Professor Jones informs me, were met with in connection with his work in Vermont.

A series of careful tests in a rainy season, for the purpose of comparing Bordeaux mixture prepared according to the ferrocyanide test, with Bordeaux mixture prepared according to the old and tedious method of weighing the lime, would certainly be a very interesting line of work. We know that the ferrocyanide test has proved reliable in orchard work in an ordinary season, and as yet we have not met with sufficient evidence to prove that it is unreliable in a rainy season such as visited western New York in 1894.

By means of the ferrocyanide test, one part of copper can be detected in 400,000 parts of solution, certainly a delicate test. It is our practice, after this test shows that there is no more copper in solution, to add still more lime so as to insure an excess of that ingredient.

One gentleman reported to the writer that he had injured his Pear crop by spraying with the Bordeaux mixture made by following the ferrocyanide test. Inquiry developed the fact that he stopped adding the lime while the test still showed slight discoloration when dropped into the mixture. Unless, in the instances referred to in Professor Lodeman's article, the mixture was prepared by competent hands, it is possible that, as in the case just cited, the test was not properly used. It is admitted that when Bordeaux mixture is not properly prepared it is liable to produce injury, whether the weather be fair or foul. This may happen when the lime is weighed, as well as when a color test is followed.* If the work must be intrusted to men who cannot be relied on to follow the color test properly, it may be better to have them use the scales, slake each portion of lime by itself and patiently work it all through a gunny sack or some other strainer, according to the old-time custom, rather than depend on a color test for determining the proper amount of lime.

Geneva, N. Y. *S. A. Beach.*

Forest Fires in Minnesota.

To the Editor of Garden and Forest:

Sir,—The best way to stop forest fires is to prevent them from starting. This cannot be done by enacting laws merely. The best of laws will utterly fail, unless the people see to it that they are carried out. Every person in the woods must have it impressed on his mind that no fire must be allowed to get beyond his control. This may seem a great undertaking, but when we consider that there are 20,000 to 25,000 men employed by lumbermen in the Minnesota woods, that the merchants are all studying how to perpetuate the lumber industry, and that they can get information concerning any one through the

* Note the experience of Professor Galloway, Bulletin 3, Division of Vegetable Pathology, U. S. Department of Agriculture, 1892, pp. 39 and 40.

retail stores, that all good citizens are beginning to feel the necessity of keeping every acre of forest productive of timber until it is needed for agriculture, it seems possible that now, after last season's disasters, every citizen could be brought to take an active part in this conference. I believe the time has come to start a movement that will soon establish a public sentiment that will make our forests as safe as the forests of Prussia, where only six one-hundredths of one per cent. of the forest area was burned during the very dry year of 1892. If this can be done in Prussia, why not in America?

Carleton, Minn. *H. B. A.*

Recent Publications.

Sweet-scented Flowers and Fragrant Leaves. By Donald McDonald. With sixteen colored plates. Charles Scribner's Sons, New York.

This work is essentially an alphabetical list of plants which are attractive on account of their fragrance. It is true, as the author states, that the professional introducers of new plants pay more attention to the size and shape and color of the flower than they do to its scent, and, therefore, it is a worthy undertaking to make this list to aid those who care particularly for the odorous qualities of plants in selecting fragrant species and varieties. The list will, therefore, prove a useful one, although many of the plants here catalogued have such a faint odor that one would hardly detect it, and, of course, it is impossible within reasonable limits to name all the plants which are pleasing to the sense of smell. We have been particularly interested in observing the efforts of the author to select words to describe the quality of a given odor. This is not an easy task—a more difficult one, indeed, than to describe a color. The only satisfactory way to do this is to say that a given odor resembles some other odor which is well known; but even this will give only an approximate idea of what is meant, since no two flowers have an identical fragrance. Turning over a few pages at random, we observe that the perfumes of different flowers are characterized as delightful, powerful, dainty, delicious, sweet, agreeable, strong, elegant, exquisite and rich. None of these adjectives, with the possible exception of "sweet," gives an accurate idea of the quality of the perfume named. Other odors are described as slight, penetrative or pungent, and these words have reference to the comparative power of odors rather than their quality. Aromatic and balsamic are words more closely descriptive. Other odors are said to be honey-like, musk-scented, lily-scented, lemon-like, or to resemble that of camphor, turpentine, mint, and these adjuncts carry some well-defined ideas. The mingling of two different colors often gives a third which resembles neither one, and some flowers are here said to have two odors, which, however, do not unite to form a third, but can be separately recognized. The flowers of Clematis Davidiana are said to have "a delicious fragrance of lemon and spice," a combination which we have never detected. So the fruit-buds of Calysaccion longifolium are said to possess an "odor like violets and rose-water," while Asperula odorata smells like "cowslips and new-mown hay," and Cuscuta verucosa smells like "violets and cowslips mixed." One can hardly understand what these combinations would be like, but still they convey some approximate idea which has more definiteness of meaning than is found in the description of the flowers of Brugmansia suaveolens, of which it is said that "their delicious fragrance diffuses through the surrounding atmosphere a perfume of unequaled sweetness."

The list fills one hundred and thirty-six pages, and while it makes no pretense of giving the botanical characters of the plants, the descriptions as a rule make mention of those qualities which would most interest the general reader. We ought to add, that besides the fragrance of the flower, notice is made of plants whose leaves or bark or fruits have a pleasing odor. The list is preceded by a brief treatise on the perfumes of flowers, and a few pages by way of sentimental introduction by Mr. William Robinson, editor of *The Garden*.

A Key to the Trees and Shrubs of New England. By E. Knobel. Bradlee Whidden, Boston. This booklet, which is one of a series intended to facilitate the study of natural history in New England, contains cuts of the leaves of two hundred and fifteen different trees and shrubs and climbers, and they are arranged in such a way that the identity of all the ordinary woody plants which grow in New England can be traced by the form and position of their leaves. The plan is novel, and, of course, like all keys, it is open to some objection. At the same time it will be found very helpful to beginners, who can, with a little study, locate all the native species which come under their observation. *The Ferns and Evergreens of New England* is another little hand-book in the same style, and by the same author, which contains thirty-eight figures of Ferns, besides Lycopodiums. If anything, this little key to the Filices is superior in method to the key to trees and shrubs, and it is especially good in giving, besides illustrations of the frond itself, outlines of the different divisions of the fronds as well as of their fructification. These little books are oblong duodecimos, and cost only fifty cents each; it is to be hoped that the succeeding volumes of the series, which will include notes on the butterflies, beetles, moths, fresh-water fish, frogs, turtles, etc., of New England, will be equally well done.

Notes.

Anemone blanda, Taurian Scillas, Chionodoxas, Grape Hyacinths, Iris Bakeriana, I. histrioides, with Crocuses and Snowdrops in variety, are now in bloom in the gardens about this city. Early Daffodils are showing buds.

The American Dahlia Society was permanently organized last Wednesday at Philadelphia, with Robert Kift as President; L. R. Peacock, Secretary; Frank C. Bruton, Treasurer, and A. Blanc, chairman of Executive Committee.

The exceptionally trying winter in Europe has done great injury to Cabbage, Kohl-rabi and Borecole planted for seed. The choice-named varieties of Celery, which are largely grown for seed in northern Europe, are also said to have been seriously injured.

Notwithstanding the fact that fresh fruits come across the continent from California by the train-load at nearly all seasons of the year, dried and canned fruits are annually exported from the same state in still greater quantities. Last year dried and canned fruits equivalent to 30,000 car-loads, or 140,000,000 pounds, were distributed throughout the world from this state.

It is objected to planting Butternuts, Hickories and Chestnuts as roadside trees, that they will be destroyed by boys in gathering the nuts. We agree with Dr. Hoskins, however, that if properly instructed the boys can be made to feel a pride in protecting what they might otherwise destroy. Why not make it a part of Arbor Day exercises to enlist the boys as defenders of the street trees in each school district?

A correspondent of *The Garden*, London, writes that at Esher Place, the residence of Sir Edgar Vincent, there is an old Tulip-tree whose stem girths eighteen feet and seven inches three feet from the ground, while its long lithe branches sweep the greensward in a circle seventy-eight feet across. The tree is in rude health, and shows no dead or dying limbs; the foliage is bright and fresh, and the flowers are produced every year "in almost extravagant abundance."

In the February issue of the Tōkyō *Botanical Magazine*, Mr. Homi Shirasaua describes, under the name of Tsuga (Pseudotsuga) Japonica, a tree recently discovered by him in the Province of Kii, near Yoshino. If this tree, which appears from the figure to be a true Pseudotsuga with shorter and broader leaves and a shorter cone than the American species, proves to be really a member of this genus, its presence in Japan is exceedingly interesting, as Pseudotsuga, as previously known, is confined to western North America.

A paper of considerable importance, read before the Washington Entomological Society by Professor Hopkins, of the West Virginia Experiment Station, has just been published. It seems to have been established that the potato scab and potato rot are due to bacteria and fungi, but Professor Hopkins shows that certain fungus-gnats belonging to the genera Sciara and Epidapus are able to inflict injuries upon potatoes which re-

semble the scab and rot, and since the conditions for developing the fungi are the very ones which are most agreeable to the insects, it is highly probable that much of the damage to the potato-crop is in reality due to them.

The Florida correspondent of *The Country Gentleman*, in speaking of the effects of the cold wave of February 7th on the Orange groves of Florida, says that, according to a conservative estimate, all trees under ten years old, except those in unusually favored situations, are dead to the ground or within a foot or so of it. These will have to be cut off and new trees grown from one or two of the sprouts that will spring from the live stumps. The Orange, under favorable conditions, is a vigorous grower and healthy roots will push out a sprout which, in a single summer, will form a shapely head and put out fruit-buds the second spring. In older groves the limbs up to one and a half inches in diameter are probably dead, but as the bark on the trunk and larger limbs is probably sound, these groves will be returning good returns within a decade. Of course, no one yet has any absolute knowledge of the amount of damage to the trees.

The project of making an interstate park which shall contain The Dalles of the St. Croix is advocated both in Minnesota and Wisconsin, the two states which own the land. It is proposed that 250 acres in Wisconsin and 110 acres in Minnesota shall be taken, and the property can be acquired now for a comparatively small sum. The falls are not large, but the rocky ledges which rise in an almost perpendicular wall on either side of the stream, in some places to a height two hundred and fifty feet, make a bit of highly picturesque scenery, and the gray rocks here and there stained with brilliant colors from the oxides of copper which they contain, or painted with lichens and moss, have a rare beauty of their own. The Dalles proper are about a mile in length, the river in its passage through them averaging from fifty to three hundred feet in width, with a depth of one hundred feet. It is said that a clear title can now be obtained for all the land, and it seems to be a wise plan to devote it to public use forever before its rustic beauty shall have been entirely destroyed.

In a review of the White Pine industry in the north-west since 1873 the *North-western Lumberman*, after setting forth what these great Pine forests have done in making possible the settling of southern Minnesota, Iowa and the Missouri valley, shows that from 1873, when the panic occurred which caused extreme stagnation of business, the annual pine product of that region had not reached four billion feet, and owing to the hard times that amount of production was not reached until 1879, when specie payments were resumed. Steadily increasing, the production reached nearly eight billions of feet in 1884, when it fell off a trifle, and then began to increase until 1892, when it reached the enormous total of about nine billion feet. During the last two years there has been a great decline in the output of pine, especially in lower Michigan. The production in northern Wisconsin and Minnesota is likely to continue for some years, however, and then when the decline shall become marked in that part of the field we may expect a rapid subsidence of the northern White Pine industry.

Specimens of discolored leaves of the La France Rose, grown in Philadelphia, were lately sent to Professor Galloway, of the Agricultural Department of Washington, for examination, with the request that he would determine, if possible, the cause. Replying in the *Florists' Exchange*, he suggests that since there was no fungus found, the injury may be due to the action of some poisonous vapors. This was improbable, however, since a poison vapor would naturally affect both sides of the leaf, while the disfiguration in this case was confined entirely to the upper surface of the leaves. It was, therefore, suggested that there might have been some injurious substance in the water with which the leaves were sprinkled. Professor Galloway quotes an interesting article from some German periodical, in which it seems to be demonstrated that Rose-leaves in an outdoor garden were injured by vapor from asphalt which was washed out of the air by falling rain and dropped upon the foliage. Careful study seemed to prove that the slight quantity of iron held in the vapor in the form of iron salts caused the trouble. Of course, the quantity must have been exceedingly minute in this case, and, therefore, it may be possible for an almost infinitessimal percentage of iron in water used upon plants to bring about this discoloration, which is caused by the precipitation of the tannin held in the sap of the leaves. Begonias and other plants which contain no tannin, when subject to the same conditions, received no injury.

The season for Cuba pineapples, which opens here about the middle of April, is already anticipated by advance lots of this fruit in shipments of 100 to 300 barrels. As many as 27,000 barrels arrived in a single week during last May. The variety now beginning to come is the Red, or Strawberry pineapple, and this will be in season here until the last of June. It is most abundant and in best condition in May, when it is in greatest demand for preserving and for making extracts, its rich flavor rendering it specially suitable for this use. The Sugar-loaf pineapple, which comes early in June, continues through July. Good pineapples now cost twenty-five to thirty-five cents each at retail. Florida oranges seem to hold a place entirely their own, for even the shortage of 2,000,000 boxes of this fruit has not made any extraordinary demand for other oranges, or materially increased their prices. Seedling oranges from California sell as low as $1.50 a box at wholesale, and from this the merchant must deduct ninety cents for freight charges. Navel oranges sell at $2.75 to $3.25 by the box. Sicily oranges have been selling at serious loss to importers, and fruit which cost $1.87 a box in Sicily, with expenses for cartage, insurance, commission, etc., to be added, is sold here at auction for $1.25 to $1.75, which means a loss of fifty to seventy-five cents a box. Nearly 44,000 crates of cranberries had been received in this market at this time last year, and about as many crates have been handled here this year, but only 25,000 barrels, as against 51,000 barrels a year ago. The price this season reached $14.00 a barrel at wholesale, fully double that of ordinary seasons.

Another of the Nestors of American botany has gone. This time it is Isaac Sprague, for nearly half a century the most skillful and prolific botanical draughtsman in America, who died at his home in Wellesley Hills, Massachusetts, on the 15th instant. Isaac Sprague, the son of Isaac Sprague and his wife, Mary Burr, was born in Hingham, on September 5th, 1811. His father, a cooper by trade, was an intellectual man; his mother was known for her remarkable judgment and common sense. The younger Isaac Sprague served his apprenticeship as a carriage-painter with an uncle, spending his holidays and spare hours learning to draw and paint. In 1834, having come into possession of a copy of Nuttall's *Ornithology*, he began to study birds, all his leisure moments during the next ten years being devoted to making himself acquainted with their habits and structure, and in drawing birds and plants. In 1840 Audubon came to visit a friend at Hingham and was much impressed with Sprague's bird pictures, and three years later, at Audubon's request, he passed a month with him in New York, which led to his being invited to join the great naturalist in an expedition to the upper Missouri to assist in making drawings and sketches. A lark discovered during this expedition was named by Audubon Alauda Spragueï. In 1844, at the request of Professor Asa Gray, Sprague visited him in Cambridge; beginning about this time his botanical work, with drawings, for Gray's *Text-book of Botany*, and a series of large botanical charts used by Professor Gray to illustrate a course of lectures in the Lowell Institute.

In 1845 Sprague established himself in Cambridge and devoted his time to scientific work. At this time he made the very successful outline drawings for Mr. Emerson's *Trees and Shrubs of Massachusetts*, a work which, in a second edition, he illustrated at the end of his active career with beautiful colored drawings. In 1848 the first volume of Professor Gray's *Genera Floræ Americæ Boreali-Orientalis*, a work intended to illustrate the genera of North American plants, appeared. Unfortunately, lack of support brought the undertaking to a close at the end of the second volume; the plates, two hundred in number, were drawn in outline by Mr. Sprague with elaborate analytical details and were far superior to any botanical drawings that had been made in America at that time. They must be considered Sprague's most important work and are still models of their kind. His pencil illustrated Torrey's *Plantæ Fremontianæ*, and all of Dr. Gray's classical memoirs on the plants collected by Charles Wright and others on the south-western borders of the United States, and his report on the plants collected in the Wilkes Expedition. His published plates give, however, but a slight idea of Sprague's industry, and he has left portfolios filled with drawings of birds, insects and plants, and innumerable sketches.

Spraguea, a beautiful little herb of the foothills of the Sierra Nevada, was dedicated to him by Torrey in token of the appreciation the masters of botanical science in America held for this modest, retiring and industrious man, a true naturalist and lover of nature, to whose skillful pencil much of the value of their work was due.